



Instruction Manual for *Super head+R* | Cylinder Kit

For exclusive use in Super Head+R

Item No.: **01-04-0104** (124 cc)

01-04-0105 (138 cc)

- Thank you for purchasing one of Takegawa's products.
- This is a piston and cylinder kit for exclusive use in Super Head+R of Takegawa's make. You are kindly requested to observe the following in using and installing the kit.
- We have given ceramic composite plating treatment to an aluminum sleeve of the cylinder, which has improved durability and abrasion-resistance compared with the conventional cast-iron sleeves. Moreover, we have successfully designed the piston clearance to be less and reduced the friction loss. The piston is also designed to be light-weight, and the molybdenum coating is applied to the piston skirt, which makes easier the insertion of the piston into the cylinder.

◎ Please note that, in some cases, the illustrations and photos may vary from the actual hardware.

Please read the following before installation.

! Points to notice about sounds !

After installing this product, in some cases a cooling fin in the cylinder may resonate, making a sound. In this case, as a measure, fix a damper included in the kit to the cooling fin of the cylinder.

- ◎ We do not take any responsibility for any accident or damage whatsoever arising from the use of the products not in conformity with the instructions in the manual.
- ◎ We shall be held free from any kind of warranty whatsoever of products other than this product if the glitch takes place on the other products than this one after the installation and use of this product.
- ◎ If you make modifications to the products, we shall be held free from any guarantee of the products.
- ◎ This kit is for exclusive use in Super Head+R of our own make.
- ◎ A cylinder included in this kit may interfere with crankcases depending on individual differences of the stock crankcases. If there is interference, the crankcase needs processing.
- ◎ Processing of stock crankcases requires detachment and reinstallation of an engine and separation of crankcases. Please do the work correctly referring to HONDA's genuine service manual. And the assembly and installation need gaskets, etc. additionally, which please purchase separately.
- ◎ Please be informed that we shall be held harmless against any claim against us whatsoever arising out of use of the products in racing and the like.



Caution

The following show the envisioned possibility of injuries to human bodies or property damage as a result of disregarding the following cautions.

- This product is designed for exclusive use on the closed course. So, take note that it is prohibited to drive your motorcycle on a public road after installation of this kit. Drive your motorcycle at a legal speed, abiding by the laws.
- Work only when the engine and the muffler are cool. (Otherwise, you will burn yourself.)
- Prepare right tools for the work. (Otherwise, improper work could cause breakage of parts or injuries to yourself.)
- As some products and frames have sharp edges or protruding portions, please work with utmost care. (Otherwise, you will suffer injuries.)



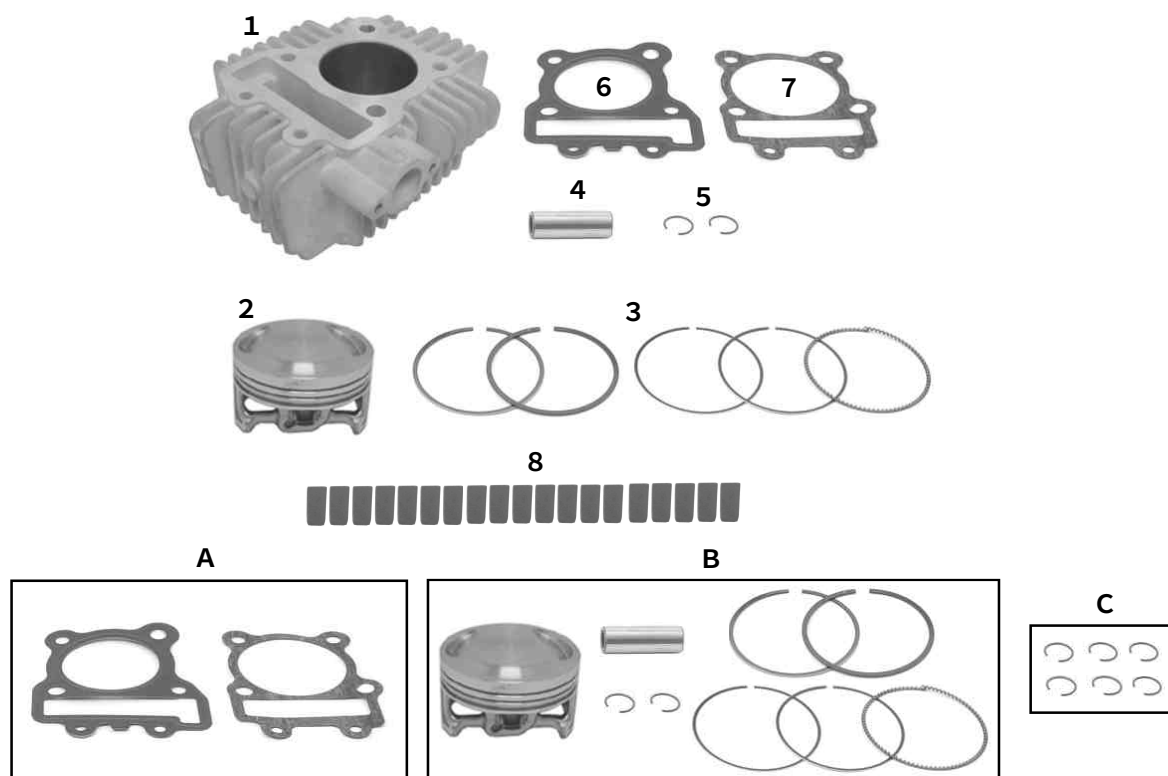
Warning

The following show the envisioned possibility of human death or serious injuries to human bodies as a result of disregarding the following cautions.

- Those who are technically unskilled or inexperienced are required not to do the work. (Improper installation because of insufficient skill and knowledge could lead to parts breakage and subsequently to accidents.)
- Always use new piston pin circlips, gaskets, packings and the like. Worn or damaged ones may cause accidents because of breakage of these parts.
- Before doing work, make sure your bike is secure on level ground for the sake of safe work. (Otherwise, your motorcycle could overturn and injure you while you are working.)
- If you find damaged parts when checking and performing maintenance of your motorcycle, do not use these parts any longer, and replace them with new ones. The continued use of these damaged parts could lead to an accident.)
- Always start the engine in a well-ventilated place, and do not turn the engine on in an airtight place. (Otherwise, you will suffer from carbon monoxide poisoning.)
- Before riding, always check every section for slack in parts like screws. If you find slack ones, screw them securely up to the specified torque. (Or improper torque may cause parts to come off, leading to accidents.)
- When you notice something abnormal with your motorcycle while riding, stop riding immediately and park your motorcycle in a safe place. (Otherwise, the abnormality could lead to accidents.) (Otherwise, the continued ride could lead to accidents.)
- As gasoline is highly flammable, never place it close to fire. Make sure that nothing flammable is near the gasoline. (It may cause a fire.)
- Check or perform maintenance of parts correctly according to the procedures in the instruction manual or a service manual. (Improper checking or maintenance could lead to accidents.)
- Never use parts other than those specified by us. (Or, the unspecified parts may break, leading to accidents.)
- Tighten parts securely using a torque wrench to the specified torque. (Otherwise, bolts and nuts may break or come off, causing accidents.)
- Since vaporized accumulation of gasoline is quite dangerous, work in a well-ventilated place. (It is at the high risk of explosion.)
- Be sure to always use premium unleaded petrol. (Otherwise, troubles such as knocking of an engine may cause accidents.)

- ◎ Please be informed that the product specifications, design and prices are subject to change without prior notice.
- ◎ Please be informed that we do not accept any complaint filed with us against any technical trouble caused by the combined use of our products with other manufacturers' products unspecified by us.
- ◎ Please retain this Instruction Manual for future reference.

~ Kit Contents ~



No.	Part Name	Qty
1	Aluminum cylinder	1
2	Piston	1
3	Piston ring set (top, 2nd, oil)	1
4	Piston pin	1
5	Piston pin circlips	2
6	Cylinder head gasket	1
7	Cylinder gasket	1
8	Cylinder dampers B	19

No.	Repair Parts Item No.	Part Name
A	56 01-13-0102	Gasket kit B
	59 01-13-0103	
B	124 01-02-0101	Piston kit
	138 01-02-0102	
C	000-02-120	Piston pin circlip set (consisting of 6 pcs)
1	56 01-01-0101	Aluminum cylinder
	59 01-01-0102	
2	56 13108-KSH-T00 (for 124 cc)	Piston
	59 13110-KSH-T00 (for 138 cc)	
3	56 01-05-020	Piston ring set
	59 01-15-023	
4	000-02-102	Piston pin
8	000-03-048	Cylinder damper B (consisting of 10 pcs)

∴ In placing a repair parts order with us, please quote the Repair Parts Item Nos.
In some cases, however, we may not be able to accept your orders for a single item of the assembled unit. In this case, please order the required parts in the unit of a set.

SPECIAL PARTS TAKEGAWA Co.,Ltd.

3-5-16 Nishikiorihigashi Tondabayashi Osaka Japan

TEL : 81-721-25-1357 FAX : 81-721-24-5059 URL : <http://www.takegawa.co.jp>

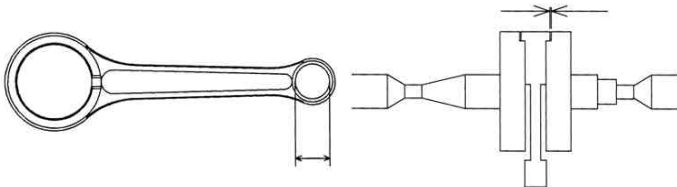
~ Installation Procedures ~

- ⚠ **Caution:** Always be sure to tighten parts to the specified torque using a torque wrench.
- ⚠ **Notice:** The unskilled or those without proper knowledge are requested not to do the installation work.

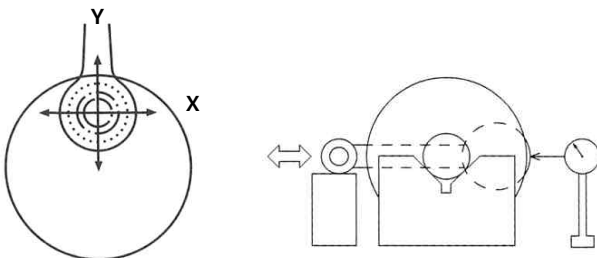
- Installation of this kit requires, in some cases, engine removal and crankcase disassembly. Please prepare and refer to a genuine service manual to do the proper installation work.
- According to the service manual, demount the engine from the frame and and disassemble it.
- A crankcase may interfere with a cylinder sleeve depending on individual differences of the crankcases. If there is interference, the crankcase needs processing.
- Setting the cylinder in place with a dowel pin, attach it to the crankcase, and check for the interference with the crank cases.
- In case there is interference, see where the cylinder interferes with the crankcases.
- Referring to the service manual, disassemble the crankcases, and scrape the interfering part with a file or a hand grinder but bit by bit not to over-scrape the portion.
- In scraping, be careful not to let the cutting chips and shavings into bearings and other parts. After the processing of the crankcases, clean them.
- After disassembling the crankcases, check every component referring to the service manual.
- ⚠ **Caution:** Do inspection of every component and replacement of consumables, with utmost care.

Inspection of Crank Shaft

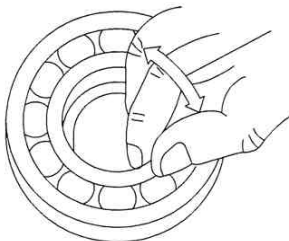
- Measure the internal diameter at the small end of the con'rod.
 - ∴ If larger than 13.05 mm, replace it.
- Measure the clearance at the big end of the con'rod in the axial direction.
 - ∴ If larger than 0.4mm, replace it.



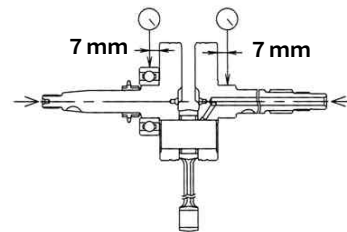
- Measure the misalignment at two points at the big end of the con'rod at right angles to the shaft as shown in the figure on the right.
 - ∴ If larger than 0.07mm, replace it.



- Measure the misalignment on the journal bearing of the crank shaft.
 - ∴ Shaft direction: If larger than 0.10 mm, replace it.
 - Bearing direction: If larger than 0.05 mm, replace it.



- Measure the deflection of the crank shaft.
 - ∴ If larger than 0.08 mm, replace it.

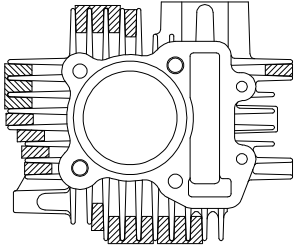


- Assemble the crank case referring to the service manual.

~ Cylinder Installation Procedures ~

- Securely fix cylinder dampers B, included in the kit, between the cylinder cooling fins until they hit a dead end as shown in the figure below.

(This installation is aimed at reducing a resonant sound from a cylinder cooling fin.)



- Attach a piston pin circlip to one of two pin holes on the piston.



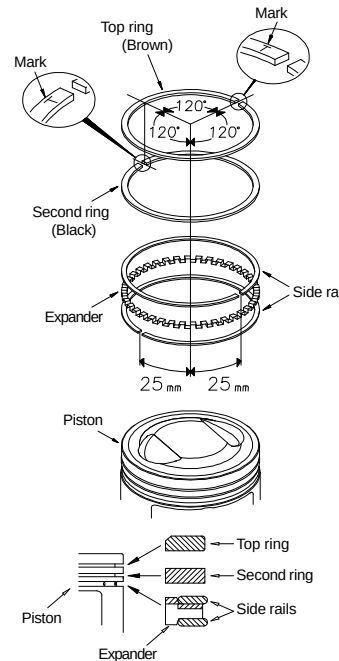
- Attach the piston pin circlip so the ring end gap does not meet with the notch on the piston pin hole, and it should be either on the top or at the bottom of the piston as illustrated in the fig. 1 below.



End gaps

- Air-blow the piston rings and the piston pin, and check for jamming of any foreign material by these parts.

- Apply engine oil to grooves for piston rings, and, with reference to the figure below, fix piston rings and arrange the location of piston ring end gaps.



- Apply molybdenum solution to the piston pin and the holes on the connecting rod small end.



- Attach the piston to the connecting rod with an arrow on the piston in the direction of the exhaust side.



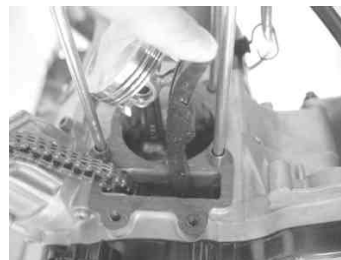
- Plug the sleeve hole and the cam chain hole on the crank case with a clean cloth, and fix a piston pin circlip.



- Remove the cloth used to plug holes.
- Thoroughly degrease the cylinder base of the crankcase, and fit a dowel pin into the dowel pin hole.



- Fix a cylinder gasket of the kit into the cylinder base of the crankcase.



- Apply engine oil to the entire inner surface of the aluminum cylinder bore.

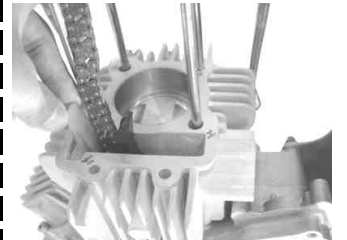


- Put the aluminum cylinder into the stud bolt, and attach the cylinder, compressing the piston rings.

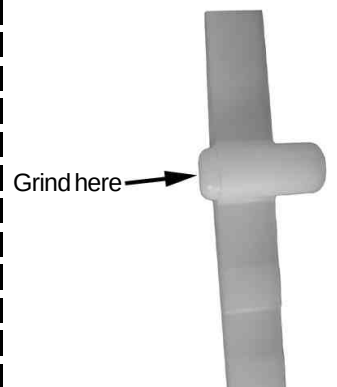
Be careful not to move the piston ring gaps out of position.



- Attach the cam chain guide to the cylinder.



※ Installing the chain guide on cylinder, the chain guide may not reach at the bottom of the groove. In that case, you need a modification as the photo shown below to install the chain guide properly.



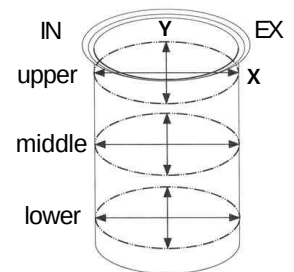
- Install the cylinder head with reference to the instruction manual.

Reference Value List for Cylinder and Piston Maintenance

Item			Stock	Service limit	Remarks
Cylinder	Distortion			0.05 mm	Replace
	Internal diameter	φ56	56.000~56.015mm	56.05mm	Replace
		φ59	59.000~59.015mm	59.05mm	Replace
Piston	External diamter (7.5 mm from the hem of a skirt) (7.5 mm from the hem of a skirt)	φ56	55.965~55.985mm	55.95mm	Replace
		φ59	58.965~58.985mm	58.95mm	Replace
	Internal diameter of a pin hole		13.002~13.008 mm	13.03 mm	Replace
External diameter of a piston pin			12.994~13.000 mm	12.98 mm	Replace
Piston ring end gap size		Top	0.15~0.38 mm	0.50 mm	Replace
		2nd	0.20~0.45 mm	0.50 mm	Replace
		Oil	0.20~0.70 mm	0.90 mm	Replace
Clearance between cylinder and piston				0.12 mm	Replace
Clearance between piston and pin			0.002~0.014 mm	0.05 mm	Replace

○ Inspection of Cylinder

- Check the inside of cylinder for wear and damage.
- Measure the internal diameters of the cylinder bore at 6 positions; at the piston pin angle and at the right angle to it (X-Y) each at upper, middle and lower parts of the cylinder bore.
Treat the largest value as its internal diameter.
∴ If larger than 56.05mm at $\phi 56$, replace it.
If larger than 59.05mm at $\phi 59$, replace it.
Calculate the clearance between a cylinder and a piston.



○ Inspection of Piston

- Clear the piston of the remaining carbon residue.
- Fit a piston ring into the piston, and measure the clearance between the piston ring and ring groove with a thickness gauge.
∴ If larger than 0.17mm, replace it.
- Check the piston for damages.
- Measure the external diameter of the piston at the specified place at the bottom edge of the piston skirt at the right angle to the piston holes.
∴ If smaller than 55.95mm at $\phi 56$, replace it.
If smaller than 58.95mm at $\phi 59$, replace it.
- Measure the internal diameter of the piston pin hole.
∴ If larger than 13.03mm, replace it.
- Calculate the clearance between the piston and the piston pin.



○ Inspection of Piston Ring

- Press down a piston ring into the piston with the piston head, and measure the clearance of the ring-end gap at the horizontal position with a thickness gauge.
∴ Top and 2nd : If larger than 0.5mm, replace them.
Oil : If larger than 0.9mm, replace it.

